

6318 Wireless BLE Dial

Remote-read BLE output sensors for use with existing ASME Tanks and DOT Cylinders



The 6318 Wireless BLE Dial provides a wireless connection between a Rochester Sensors mechanical gauge and the corresponding telemetry system. The self-contained dial reads from the gauge in the tank and broadcasts via a Bluetooth Low Energy (BLE) output to a telemetry system. The 6318 can be retrofitted on existing applications, replacing a conventional dial and R3D module. An integrated LCD provides a percentage full reading in an easy to see display.

The dial is designed to support a 10-year battery life. The 6318 Wireless BLE Dial can be replaced at the end of the service interval. The 6318 Wireless BLE Dial is not user serviceable.

The wireless operation simplifies installation and eliminates any issues with cable connection and subsequent damage during operation. The Wireless transmission allows the telemetry unit to be located farther from the tank to optimize cellular transmission. The 6318 conforms to similar intrinsic safety requirements as the 9700 Series Modules: Class 1 Div 1 for IECEx/ATEX/UKEX/CSA.

The 6318 Wireless BLE Dial is compatible with Rochester Sensors standard 1.5" gauges including medium-duty spiral gauge. It is available in both a snap-on and screw-on versions to replace existing direct read and R3D junior dials. A version of the 6318 Wireless BLE Dial is available for Rochester Sensors Sr Dial gauges with an adapter ring to allow the dial to mount on existing Sr size gauges.

Application

The 6318 Wireless BLE Dial acquires level readings from a tank on 30 second intervals. The sensor broadcasts via BLE every 2.4 seconds. This transmission occurs automatically and does not require pairing with a handheld or similar device. The local LCD is updated every time the sensor takes a new measurement. The 6318 Wireless BLE Dial incorporates a fill detect mode. When a fill is detected, the 6318 dial will acquire new level readings every second and update the LCD. The 6318 dial will exit fill mode automatically.

General Information and Features

- Polycarbonate housing offers excellent mechanical properties and chemical resistance.
- No exposed sensing elements, all components are located on the PCB inside the housing.
- Ingress Protection: IP6K9K rated.
- Over-the-air firmware update capability
- Snap-on and screw-on versions

Key Benefits

- No exposed cables
- Fast installation time
- Easy to read digital display shows tank volume in 1% increments.
- Rugged plastic housing
- Fully sealed, IK9 impact rating
- Field replaceable at end of lifetime









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LCD Status Indicators

The 6318 Wireless BLE Dial is equipped with a 2-digit 7-segment LCD display. The LCD will show status codes to indicate different conditions. Some status codes are considered errors while some are considered warnings and will affect the level value system wide. Refer to each code for an expected behavior. Refer to Appendix A for all system errors and warnings.

| LCD Output | Description |
|--|--|
|  | bL: Battery low. Battery is estimated to be within 1-2 years of expected end of life. The measured level will alternate on the LCD with this code. |
|  | bC: Battery critical. Battery is estimated to be < 1 year of expected end of life. The measured level will alternate on the LCD with this code. |
|  | Er: Device error. Contact Rochester Sensors. |
|  | Lo: Low or Low-Low Warning. Tank level is below expected operating range. |
|  | Hi: High or High-High Warning. Tank level is above expected operating range. |
|  | Float arm position is out of measureable range and the sensor cannot determine a meaningful number. Bluetooth level indicates 0xFFFF. |

Product Certification

Rochester Sensors 6318 Wireless BLE Dial is certified as intrinsically safe for class 1, Division 1, Groups C & D hazardous locations. Products are marked and approved by ETL, ATEX, UKCA, and CE.

| Hazardous Locations Safety Standards | |
|---|--|
| IEC 60079-0: 2017 | Explosive atmospheres – Part 0: Equipment – General requirements *Note: For IECEx Certification |
| EN 60079-0: 2011 + C1: 2012 | Explosive atmospheres – Part 11: Equipment protection by intrinsic safety "i" *Note: For IECEx Certification |
| EN 60079-0: 2018 | Explosive atmospheres – Part 0: Equipment – General requirements *Note: For ATEX Certification |
| EN 60079-0: 2012 | Explosive atmospheres – Part 11: Equipment protection by intrinsic safety "i" *Note: For ATEX Certification |
| UL 60079-11, 6th Ed., Issued 03/26/2019 | Explosive atmospheres – Part 0: Equipment – General requirements *Note: For USA listing Certification |
| UL 60079-11, 6th Ed., Revised 03/28/2014 | Explosive atmospheres – Part 11: Equipment protection by intrinsic safety "i" *Note: For USA listing Certification |
| CSA C22.2 No. 60079-0: 2011 | Explosive atmospheres – Part 0: Equipment – General requirements *Note: For Canada listing Certification |
| CSA C22.2 No. 6009-11: 2011 | Explosive atmospheres – Part 11: Equipment protection by intrinsic safety "i" *Note: For Canada listing Certification |

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FCC Interference statement (Part 15.19)(a)(3)

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Interference Statement — PART 15.105 (B)

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

ISED Canada compliance statement

This device complies with ISED Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'ISDE Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Environmental Ratings

| Parameter | Condition | Min | Typical | Max | Unit |
|-----------------------------|---|-----|---------|-----|-------|
| Operating Temperature Range | Temperature Range | -40 | - | 65 | °C |
| Module Accuracy | | - | <1% | - | Level |
| UV withstand | 600 hrs, UVA-340 @.76W/m2, 65°C | - | | | |
| Vibration | Mil STD-810: 5 Hz, 12.7mm Amplitude, 1G, 45 minutes | | | | |

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Dimensions (in)

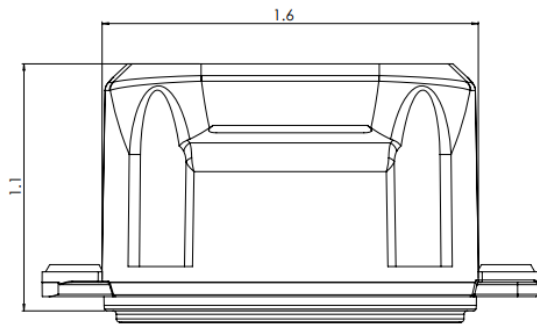


Figure 2: Screw-on Unit

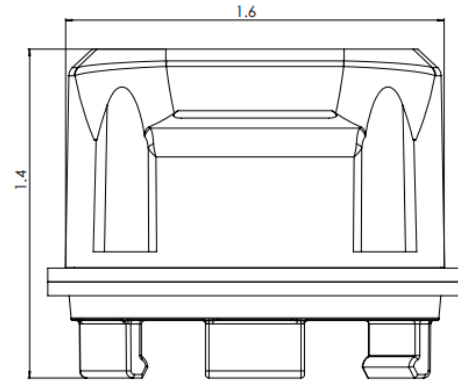
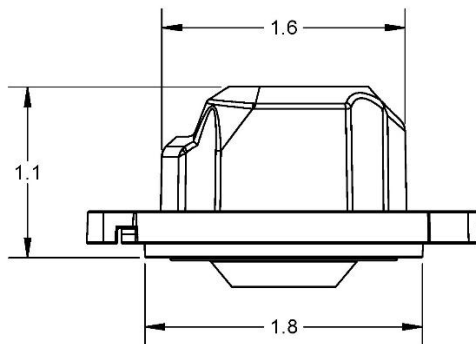


Figure 1: Snap-on unit



**Figure 3: Screw-on Unit with
Sr BLE Dial Adapter Ring**

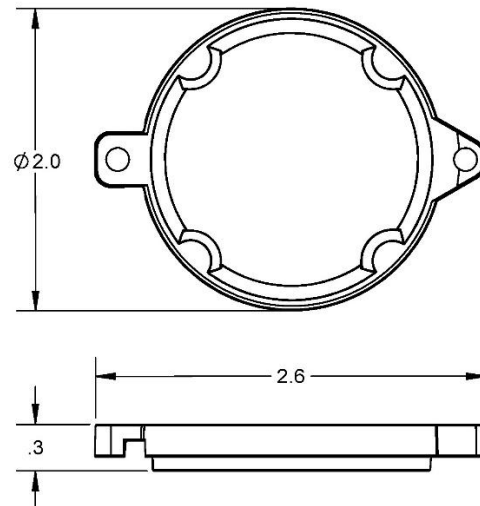


Figure 4: Sr BLE Dial Adapter Ring

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Part Number Options: 6318-LT-MMM

| Part Number | Model |
|--------------------|---|
| 6318-EH-001 | Jr Dial, European Limits, Horizontal Tank, Screw-On |
| 6318-EH-002 | Jr Dial, European Limits, Horizontal Tank, Snap-On |
| 6318-EV-001 | Jr Dial, European Limits, Vertical Tank, Screw-On |
| 6318-EV-002 | Jr Dial, European Limits, Vertical Tank, Snap-On |
| 6318-NH-001 | Jr Dial, North American Limits, Horizontal Tank, Screw-On |
| 6318-NH-002 | Jr Dial, North American Limits, Horizontal Tank, Snap-On |
| 6318-NV-001 | Jr Dial, North American Limits, Vertical Tank, Screw-On |
| 6318-NV-002 | Jr Dial, North American Limits, Vertical Tank, Snap-On |
| 6318-EH-003 | Sr Dial, European Limits, Horizontal Tank, Screw-On |
| 6318-NH-003 | Sr Dial, North American Limits, Horizontal Tank, Screw-On |
| 6318-EV-003 | Sr Dial, European Limits, Vertical Tank, Screw-On |
| 6318-NV-003 | Sr Dial, North American Limits, Vertical Tank, Screw-On |
| 0021-02914 | Sr BLE Dial Adapter Ring |

L: E – European Warning Limits, N - North American Warning Limits
T: H – Horizontal, V - Vertical Tanks
MMM: Mounting Option

Ordering Information

Contact your local sales representative for samples, availability, and pricing information.

Installation

See Document INS-6318








Disposal

This product contains a battery. At the end of product life, waste batteries should either be recycled or taken to a hazardous waste collection point.

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Appendix A

| <i>System Conditions</i> | <i>BLE STATUS BYTE</i> | <i>BLE BROADCAST LEVEL</i> | <i>LCD OUTPUT</i> | <i>Description</i> |
|------------------------------|------------------------|----------------------------|--|---|
| Normal | 0x0 | Level | Level | Normal Operation |
| Device Error | 0x1 | 0xFFFF |  | Er: Device error. Contact Rochester Sensors. |
| Tank Level < 5% | 0x2 | Level |  | Measurement Low Low Warning • LCD displays static “Lo” |
| Tank Level < 10%** | 0x6 | Level | Alt Level + “Lo” | Measurement Low Warning • LCD displays alternating “Lo” and Level |
| Tank Level > 85% | 0x7 | Level | Alt Level + “HI” | Measurement High Warning • LCD displays alternating “HI” and Level |
| Tank Level > 95% | 0x3 | Level |  | Measurement High High Warning • LCD displays static “HI” |
| NOT CONNECTED | 0x4 | 0xFFFF |  | nC: Electronics are not connected to probe. The Bluetooth level will be set to 0xFFFF. |
| Battery Low | - | Level |  /Level | bL: Battery low. Battery is estimated to be within 1-2 years of expected end of life. The measured level will alternate on the LCD with this code plus any level warning codes (if any) |
| Battery Critical | - | Level |  /Level | bC: Battery critical. Battery is estimated to be < 1 year of expected end of life. The measured level will alternate on the LCD with this code plus any level warning codes (if any) |
| Sensor Range | 0xA | 0xFFFF |  | Sensor cannot determine a meaningful level from the mechanical gauge. The Bluetooth level will be set to 0xFFFF |

** For EU products the LO warning level is 20%